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NUTRIENT MANAGEMENT PLANS

Development of Wisconsin's non-point pollution statutes will require all Wisconsin farms to have whole-farm conservation plans that will include whole-farm nutrient management plans. Much of the statutes deal with manure management that is generally not an issue for cranberry growers. However, because significant cranberry production occurs in "high priority watersheds" nutrient management plans will be required by December 31, 2006. While the regulations won't be in full effect for several years, now is the time to begin thinking about these plans.

After the effective date, a farmer who applies manure OR commercial fertilizer must have an annual nutrient management plan, and must follow that plan. A qualified nutrient planner must prepare the plan. At this point no details are available to specify what training is required to be a qualified nutrient planner. I suspect that co-op agronomists, crop advisors, and even individual growers will qualify after taking some additional training about what a nutrient management plan should contain.

The proposed statute requires that nutrient management plans be based on soil tests and applications cannot exceed recommendations made by UW-Extension in publication A-2809 Soil Test Recommendations for Field, Vegetable and Fruit Crops. Exceptions can be made when the planner documents a special need to vary from the recommendation.

This poses some potential concerns for cranberry growers. Soil tests are not the best diagnostic tool for perennial fruit crops. Tissue tests are far better. I will be reviewing the recommendations for fruit crops in this bulletin in an effort to allow appropriate diagnostic tools to be used.

Soil erosion is another issue. Farmers will be required to manage croplands and cropping practices so that erosion does not exceed a tolerable rate (defined for each soil type). Once beds are vined over and the dikes are stable this should not be an issue for cranberry growers. However, plans for managing erosion during construction and for the first year or two after planting may be prudent. WSCGA has some best management plans for reducing erosion.

WSCGA and UW-Extension have applied for grant funds to prepare some generalized nutrient management plan templates. If the proposal is funded about five sites will be utilized to prepare and test nutrient management plans. Subsequently these materials will be made available to growers and to nutrient management planners.

Teryl Roper, UW-Madison Extension Horticulturist

EROSION CONTROL

During Construction

The construction phase of marsh establishment is when most erosion can occur. Follow these suggestions to minimize soil-laden runoff.

1. Install silt fence along the down slope property edge. Silt fence should be in place before any soil is disturbed. Silt fences can be either fabric with hardwood posts placed no farther than eight feet apart or straw bales placed on their sides and anchored with posts. In either case, a four-inch deep trench should be dug and the barrier put in place then the soil placed back against the barrier on the upslope side. Doing so forces water to flow through the barrier rather than under it. Silt fences need to be inspected after every rainfall. Keep them in good repair to minimize soil movement. Comply with applicable construction erosion control ordinances.
2. Disturb as little of the site as possible. Leaving current vegetation, if any, will hold the soil in place. Disturb the site progressively as beds are constructed.
3. Compact dikes properly. Make sure the fill material is clean and doesn't contain stumps or other decomposable material. The material should be compacted as each layer is deposited.
4. Stabilize soil stockpiles by seeding or mulching. Soil can erode off soil stockpile edges. Piles that will be present for more than a few days to weeks should be stabilized by seeding or mulching.
5. Stabilize the downstream channel where tailwater leaves the marsh. Use filter fabric covered with large aggregate (determined by slope and water velocity) to prevent erosion where water would be flowing rapidly into another water body.
6. Control soil tracking onto public highways. Place course gravel (2-3 inch aggregate) where trucks or equipment will leave the site and enter public highways. The dimensions are 6 inches depth by 7 feet width by 50 feet length. Keep these in good repair during construction.
7. If the site is disturbed in the late fall (after October 1), but construction cannot be finished until spring, mulch any disturbed areas of the site to prevent erosion of unfrozen soil. Two to three inches of straw should be sufficient unless the site is sloping. Make sure silt fences are in place for sloping sites.

Following construction

Once the beds are prepared and the areas are ready for final leveling and planting there is still erosion potential. At this point practices that will prevent erosion during the life of the planting should be in place.

1. Stabilize dikes and other disturbed areas by seeding to grass, mulching or soil stabilization fabric. This is particularly important for dike edges. Construction should have produced a dike edge with a slope no greater than 1:1. During rainstorms these dike edges are still prone to erosion and should be seeded as early as practicable. Suggested grasses are perennial ryegrass, tall fescue or buffalo grass seeded at a rate appropriate for the grass being planted. These grasses will establish best when planted in the spring or fall. Consider mulching after seeding to hold moisture and prevent erosion until the grass is established. Hyrdoseeding is an economical practice. Irrigate new seedings during dry periods until well established. Stabilizing dike edges will reduce the cost of ditch cleaning.
2. Prevent soil from eroding through drainage bulkheads in beds by surrounding the bed side of the drainage bulkhead with silt fencing. This will hold eroding soil in the bed. During significant rain events water will flow over the silt fencing and still allow the bed to drain.

Conclusion

Construction of cranberry beds creates a great possibility for soil erosion. Planning before construction begins is the key to minimizing erosion. Work with the contractor to conduct the construction to minimize the soil erosion. Stabilize areas prone to erosion by mulching or seeding to grass. Erosion control prevents environmental injury.

A person soon learns how little he knows when a child begins to ask questions.

R.L. Evans

ANSWERS TO COMMON NUTRITION QUESTIONS

Potassium

A. *What is the role of K in plant growth?* Potassium does not have a direct role in plant metabolism. It is not involved in proteins or membranes. It is primarily used to balance charges and as an osmoticant (used to move water from place to place). K is important to stomata opening and closing and in the movement of sugars from one place to another in the phloem.

B. *What is the optimum timing for K application?* Because K+ will leach it is important to have frequent light applications of K as opposed to 2-3 large applications at "critical" times. In Wisconsin research different timings for K fertilizer did not affect yield or rot.

C. *Do I need more K on sand than peat beds?* Probably. I don't know of research on this question, however.

D. *How much K is required annually?* Research showed yield differences related to K rate in only 1 of 4 years. There was no relationship between K rate and tissue K. Interestingly, yield was reduced at high K rates (240 lbs K/a). 60-100 lbs K/a/yr appears sufficient. High K was correlated with decreased Ca, Mg, & Fe. Apparently, high K applications exchanged other cations off the exchange sites in the soil. I would determine that through tissue testing in the late summer. If you know how much K you have applied and what the tissue concentration is then you can adjust up or down as needed the following year.

E. *Are there cultivar differences in K requirement?* Not that I am aware of. However, substantial amounts of K are removed in the crop so I would feed a heavy producing bed more K than a light producing bed.

F. *Can I minimize K leaching on sandy soils?* The only approach I know of is to be cautious with other cation nutrients (Ca, Mg, Fe) and then over time an organic duff layer will form. This layer will have more exchange sites and will hold onto K (& other cations) better than sand.

G. *What forms of K are available?* See J. *Is one better than another on sandy soils or new plantings?* In all cases potassium sulfate is preferred over potassium chloride.

H. *Can I optimize K uptake in soils with high Ca & Mg?* Frequent light applications of K would allow it to be more available than 1-2 heavy applications. K will compete with Ca & Mg for exchange sites. Overapplication of Ca & Mg will reduce K availability. However, see the answer in D above.

I. *Foliar applications of K during bloom & early fruit set?* Research shows no effect of timing on yield. Research also shows no effect of different products when applied at the same rate of K.

J. *What is the difference between 0-0-50 and 0-0-60?* 0-0-50 is potassium sulfate (KSO_4) and 0-0-60 is potassium chloride (muriate of potash, KCl). Cranberries are sensitive to chloride, so the sulfate form is preferred.

K. *Will early applications of 0-0-60 vs. 0-0-50 adversely affect production?* Since cranberries are sensitive to Cl, at high rates 0-0-60 may cause some injury. There isn't research to support this that I know of, but grower experience does. Always choose the sulfate form. There are no data to support early application of potassium causing better fruit set or yield.

Teryl Roper, UW-Madison Extension Horticulturist

UW-EXTENSION TO OFFER MINI-CLINICS

Two mini-clinics have been scheduled in June for cranberry growers. Mini-clinics are free, informal educational sessions hosted by your fellow growers. No registration required—just show up. UW-Extension specialists (Teryl Roper, Dan Mahr, Patty McManus) will present the latest in pest control and crop management. The agenda is flexible, so please come with questions and plant / pest samples. The locations and dates:

Whetherby Cranberry—Monday June 19 at 9:30 am
Jim and Nodji VanWychen. About 4 miles east of Warrens on county road EW; about ½ mile east of Cranberry Expo Museum. Whetherby is on the south side of EW.

Rayala Cranberry—Tuesday June 20 at 10:30 am
Dan Rayala. From Highway 51 turn south onto Townline Rd. (this turnoff is north of Woodruff but south of Manitowish Waters. Road goes straight for about 1 mile, but then veers to the right and goes over a bridge. Follow the road for about 1 more mile until you reach Cranberry Blvd. Rayala Cranberry Co. is at the end of Cranberry Blvd.

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